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Published in:
Occupational Medicine & Health Affairs

DOI:
10.4172/2329-6879.1000157

Publication date:
2014

Document version
Final published version

Citation for pulished version (APA):
Frantzeskou, E., Jensen, O., & Linos, A. (2014). Prevalence of health risk factors among fishermen: a review. Occupational Medicine & Health Affairs, 2(2), [157]. DOI: 10.4172/2329-6879.1000157

Occupational Medicine & Health Affairs

Frantzeskou et al., Occup Med Health Aff 2014, 2:2
http://dx.doi.org/10.4172/2329-6879.1000157

Review Article Open Access

Prevalence of Health Risk Factors among Fishermen – A Review

Elpida Frantzeskou[1]*, Olaf Jensen[2] and Athena Linos[1]

[1]*Department of Hygiene and Epidemiology, Medical School, University of Athens, Greece*

[2]*Centre of Maritime Health and Society, Institute of Public Health, University of Southern Denmark, Esbjerg, Denmark*

***Corresponding author:** Elpida Frantzeskou, Department of Hygiene and Epidemiology, Medical School, University of Athens, 75 M. Asias str., 11527, Athens, Greece, Tel: (003) 6932-324669; E-mail: elpidafrantzeskou@gmail.com

Received date: April, 09, 2014, **Accepted date:** April 26, 2014, **Published date**: April 30, 2014

Abstract

Background: Studies have shown that fishermen have a higher mortality from cardiovascular diseases, cancer and accidents. The majority of cardiovascular disease is caused by external risk factors such as the diet, tobacco, alcohol and lack of physical activity. The purpose of this paper was to review the available information on the prevalence of these preventable risk factors in order to strengthen the preventive strategies.

Methods: A search for the last decade was done via Medline, Google and Google Scholar with the keywords "diet, tobacco, alcohol, physical exercise, overweight AND fisherman OR fishing and only those with precise prevalence estimation were included.

Results: One Turkish, Scottish, Spanish, Greek and a Danish study were found. The prevalence rate for current smoking varied from 40% - 82% in the countries. Daily alcohol use also varied with 80%, 78% and 68% among the Scottish, the Greek and the Turkish fishermen respectively. For the diet, 23% of the Scottish fishermen reported eating fruit and vegetables more than once a day at sea and only 29% at home. The Spanish study reported “excessive calorie consumption while on shore, notably high in animal fats and accompanied by moderate–high alcohol consumption. On many vessels, food was limited to coffee, sandwiches and occasionally fruit on board. 66% of the Greek fishing workers did not perform any kind of exercise outside work. Obesity (Body mass index > 30.0) was found for 33% of the Greek fishermen. Of the Danish fishermen 25%-, 34% and 37% were obese in the 18-24, 25-44 and 45-64 years age groups.

Conclusion: Health risk factors among fishermen need to be highlighted and further investigated as they represent occupational risks of major impact to chronic diseases prevalence with projections to quality and duration of fishermen’s life, but also to their future career in fisheries sector.

Keywords: Fishermen; Cardiovascular; Health; Risk factors; Health promotion

Introduction

This review is produced based on a kind request from the editors of the Occupational Medicine & Health Affairs Journal that asked us to present a short note or mini-review based on some of the current health research in fisheries sector. We are very delighted to be able to give this small contribution on health risk factors among fishermen to raise the interest among all types of workers’ subspecialties in fisheries and aquaculture. While safety in fishing most often has the highest priority, we take the opportunity to highlight the need for analysis and prevention of the fishermen’s health risk factors related to their specific work and living conditions. We believe that only by multi-professional collaboration it is possible to obtain the same high standards on health and safety in fishing and aquaculture as for all other professions.

Studies have shown that fishermen have a higher mortality from cardiovascular disease, cancer and accident [1,2]. It is generally agreed that the majority of cardiovascular disease (CVD) is caused by external risk factors that can be controlled, treated or modified, such as the diet, tobacco, alcohol and lack of physical activity [3]. The dependent chronic diseases and/or conditions are mainly hypertension, diabetes, obesity, high cholesterol/lipid, cancer and early death. These are seen as the effects of long term exposures to the external risk factors. Further it is well known that cardiovascular diseases become increasingly common with advancing age. The heart undergoes subtle physiologic changes, even in the absence of disease, thus it is very important to prevent the development of the chronic diseases allowing fishermen to live in good health as many years as all other professions. The objective was to review the available information on the prevalence of the main preventable risk factors for the chronic non-infectious diseases in order to strengthen preventive strategies and to point out areas for further research and health promotion.

Methods

The Medline, Google and Google Scholar were searched with the keywords "diet, tobacco, alcohol, physical exercise, overweight AND fisherman OR fishing. Only articles and reports with precise prevalence’s were included. Further, the references served as supplemental source of information. The prevalence of overweight is included as indicator of the possible risk for cardiovascular diseases. The study included only publications within the latest ten years in order to be based on useful documentation necessary for the prevention.

Results

Five articles referring to a Turkish, Scottish, Spanish, Greek study and a Danish study were found that gave information about one or more of the prevalence rates related to the objectives and all (except the Danish) were based on questionnaires, mainly self-completed ones except from the Greek study in which an interview in person took place.

Tobacco

In the Turkish study, eighty-one per cent of fishermen reported that they smoked with nearly two-thirds smoking 20 cigarettes per day. Seventy-two per cent of fishermen reported that they smoked more during fishing trips [4]. Among the Scottish fishermen [5], 38% of the respondents were current smokers. Fishermen smoke significantly more when they go to sea. The vast majority of smokers, 88%, thought their present levels of smoking were harmful to their health and 82.3% of smokers stated they would like to give up smoking [5]. In the Greek study, current smoking referred to 40% of the sample (n=100) and 41% were former smokers while 16.91% considered smoking very harmful to health. Smoking in the workplace for workers in the sample ranged from moderate to high at 46% [6]. Among Spanish fishermen a total of 60% of those surveyed smoked, with nearly one-third smoking an average of 30 cigarettes per day [7].

Alcohol

In the Turkish study, sixty-eight percent of the fishermen consumed alcohol, but only a minority of them (10%) consumed alcohol on fishing trips [4]. In the Scottish study, 80% of respondents drank alcohol and only 7% of those that drank considered their present level of consumption as harmful to their health. Of the fishermen, 12% were drinking over the recommended safe weekly limit of 21 units. Fishermen were also asked about their consumption of alcohol at sea. Only 1% of fishermen reported drinking alcohol at sea, but none reported drinking more than 3 units a day at sea. The questionnaire asked fishermen who drank if they knew "how many units of alcohol is considered to be safe and sensible for a male to drink in a week?". Only 5% were aware that 21 units is considered the safe weekly limit of alcohol consumption for a male [5]. In the Greek study a total of 78% responded positively to alcohol consumption with 19.3 years average initiation age of alcohol consumption. Fifteen percent consumed more than a bottle of wine a day [6]. In the Spanish study, alcohol consumptions differed greatly when comparing alcohol intake between on shore levels and at sea levels. The average alcohol intake in fishery workers when on shore was 19 g/day. A total of 30% of workers reported drinking at sea with an average alcohol intake of 8.5 g/day [7].

Diet

In the Scottish study, the self-perceptions and the actual quality of fishermen's diet (fruits and vegetables consumption was used as quality markers) was assessed by using questionnaires. Supplemental in a 10-membered subgroup of fishermen a diary of meals and drinks was kept during the fishing trip. In this study, "6% perceived their diet as excellent, 24% as very good, 42% as good, 22% as fair and only 5% as poor. Only 23% of fishermen reported eating fruit and vegetables more than once a day at sea and only 29% at home. Fishermen ate significantly less fruit and vegetables when they went to sea" [5].

The Spanish study reported that "With reference to lifestyle, most workers reported excessive calorie consumption while on shore, notably high in animal fats and accompanied by moderate–high alcohol consumption. While at sea, workers reported an average calorie intake of 1800 kcal. Calorie intake was higher on smaller and multipurpose vessels. On many vessels, food was limited to coffee, sandwiches and occasionally fruit on board. Younger people on smaller boats had higher levels of carbohydrate intake. High levels of protein intake were observed in the crews of netters and trawlers" [7].

In the Greek study, 32% preferred fat cooked foods, 51% added extra oil to their salad whereas it reports the crew's habit of having fatty meals combined with heavy alcohol consumption after docking [6].

Danish fishermen prepare their own food, just like the Greeks, as they both work in small vessels mainly. ''Most Danish fishermen are away from home for relative short periods of time and thus spend a large proportion of their time at home. Very few are involved in long-distance fishing'' [8].

Physical activity

Only the Greek study included physical activity and 66% of fishing workers did not perform any kind of exercise outside work [6]. Fishing is an occupational activity demanding high energy levels and that provokes overload of the fisheries employees thus setting limitations in their ability for other physical activity of a desirable type which could act as protective factor against obesity and finally against all the health consequences of obesity which according to WHO include cardiovascular diseases, diabetes type 2, musculoskeletal disorders and certain types of cancer.

Overweight

Both of the two studies with calculated BMI values (the Greek and the Danish one), were divided into three levels of weight according to definitions made by the WHO [9,10] underweight and normal weight (below 25), (2) overweight (25.0–29.9), and (3) obese (> 30.0). In the Greek study a total of 78% of fishermen were overweight to obese — 33% of the sample has a BMI > 30 [6]. Among the Danish fishermen aged 18-24, 25-44 and 45-64 years respectively overweight were 28.6%, 47% and 42% respectively. Obese were 25%, 34% and 37% respectively in the age groups [8]. As we know there is evidence that low education has been related etiologically with obesity incidence and that is also seen in both Greek and Danish studies. Of course this represents one only of the causative parameters because obesity seems to be a complex issue from etiologic point of view as it is well pointed by [8]. In the Danish study obesity is also related with marital status as a high percent of Danish seamen who live without family are obese but this explanation has limitations easily evidenced if we consider the Greek study in which 78% of the study's sample were overweight to obese fishermen but the majority of the study's fishermen are married (87%). [6].

Furthermore, what is significantly important and it rises interest is the social dimension of overweight of obesity in fishermen which is underlined in the Danish study. "The well-known consequences of overweight, such as an increased risk of diabetes and cardiovascular diseases, may be a special problem to seafarers and fishermen as these diseases may eventually end up making the seafarers unfit for a job at sea" [8]. Of course there is always the parameter of safety on board for overweight and even more for obese fishermen. So, overweight is by health and safety point of view incompatible with work at sea in the long perspective.

Fatigue

The Greek study indicates the irregular working hours pattern and the nature of the fishing occupational activity itself as causative for physical and psychological overload. It is reported that for Greek fishermen "Average working hours exceeded 10 hours per day (10.18) and average working months of the year reached 10.55." This overload has been clearly evidenced in a study conducted to British fishermen in which it is reported that ''16% of the fishermen had been involved in a fatigue related accident or incident, 44% said they had worked to the point of exhaustion or collapse, 41% had fallen asleep at the wheel, and 43% had been so tired they had slept on the deck or in the gangway [11].

This exhaustion probably explains the unhealthy dietary habits, heavy smoking and lack of exercise, which are all seen among fishermen participated in these 5 studies of our interest.

Discussion

The studied researches have weaknesses mainly due to the difficulty to contact fishermen for participation in a study. Thus, the response rate in each study definitely indicates a risk of selection bias. Another weakness of the 5 studies is that the prevalence percentages are given without giving information about what the respective rates in the general population would be estimated from some control material and taking into consideration factors like education, social status and age. The only exception where a control group has been used and so calculation of relative risks with confidence intervals can be made, is the case of the Danish study but this is only limited to Body Mass Index. Another important point is the diversity of the occupational conditions among small and large scale fisheries fishermen. The variability in the fishing tools, occupational environment and organization of their work is so big that practically one can tell that is describing of an almost different occupation. Nevertheless, the similarity of the results given in those studies seems to be of occupational nature, and conduction of further studies of better design (having higher response rates and control groups) is highly needed to be done. The health risk factors examined are causally related to most of the common chronic diseases. These in turn relate to the specific working conditions and culture in fishing, which need to be taken into consideration in health promotion. Fishermen need more information about the consequences of being overweight to their health and safety on board and they should be encouraged to implement preventive measures, like healthy lifestyle behaviours and good occupational practices, in their everyday occupational activity in order to avoid accidents and time-dependent pathophysiologic changes finally leading to disease or even sudden death. Safe drinking levels awareness should be incorporated both in fishermen's consciousness and country's legislation.

While at sea, it has been estimated that fishermen require a high calorie intake of 2850–3000 kcal although in the Spanish study they found an average calorie intake of only 1800 kcal [12]. Insufficient calorie intake and poor diet is a possible explanation for the gastrointestinal symptoms reported and subsequent need for antacids. As it is well pointed in the Scottish study, failure in meeting nutritional standards may be attributed to the lack of storage facilities on boats for fresh produce. Thus, fishermen consume fatty snacks and fried food with erratic timing of the meals which can be possibly linked with the results of high proportion of fishermen taking medication for gastrointestinal problems [13]. This linkage is even more strengthened by the evidence from a Japanese cross-sectional study performed in healthy adults (n=19864) in which poor quality of sleep and irregular dietary habits, all very common in fishermen who work during the night or stay in the fishing vessel for several days or weeks during fishing trips, are strongly correlated with intense symptoms of gastroesophageal reflux. [14].

Data on BMI and mortality showed that fishermen are in a special medical at high risk occupational group. Concerning the organization of preventive measures, it is important to take into account that obesity and chronic diseases are related to social class [15]. The social group that includes a large proportion of fishermen does not seem to benefit from the usual advices about nutrition and exercise covered by the preventive interventions. The health, work, and living conditions are supposed to have a strong influence on family life, and on the conditions for fishing industry workers on land. These perspectives have previously not been taken into consideration in the political regulations of the fishing trade, leaving a large work force population out of the protective barrier of prevention and health promotion

Working conditions at sea often make it difficult to implement programmes able to help the fishery workers. Furthermore, low level of education represents another cause of preventive measures negligence. However, there is a need for introduction of specific health and safety strategies, which should be adapted to the special conditions of each working environment, (even locally adjusted if diversity of occupational conditions exists in great extent) in order to be suitable and finally effective. And that is highly needed as the differentiation between small scale fisheries and large scale fisheries, the diversity of local fishing tools among different countries and the ethnic culture adjustment in the occupational environment are all impressively existing parameters to be taken into account.

Conclusions

Health promotion and education initiatives should be conducted to raise fishermen's awareness of the risk for developing chronic diseases which may force them to quit the profession due to permanent incapacity. Fishermen should be encouraged to smoke less, eat more fruits and vegetables especially at sea, and try to regulate their meal times as much as possible, which in turn may have strong influence on the safety on board. Thus, it is suggested that some careful well designed studies, based on real time monitored conditions and different scenarios, to be done before addressing some strict preventive measures to the overloaded and frequently eager for survival fishermen. This is a good rule in order to stay attached to reality conditions and thus design the proper preventive measures and advisable behaviours as effectively as possible.

References

1. Pougnet R, Pougnet L, Loddé BL, Canals-Pol ML, Jegaden D, et al. (2013) Cardiovascular risk factors in seamen and fishermen: review of literature. Int Marit Health 64: 107-113.
2. Kaerlev, Linda, Søren Dahl, Per Sabro Nielsen, Jørn Olsen, et al. (2007) "Hospital Contacts for Chronic Diseases among Danish Seafarers and Fishermen: A Population-Based Cohort Study." Scand J Public Health 35: 481–489.
3. Mendis, Shanthi, Pekka Puska, Bo Norrving (2011) Global Atlas on Cardiovascular Disease Prevention and Control. World Health Organization.
4. Percin F, Akyol O, Davas A, Saygi H (2012) Occupational health of Turkish Aegean small-scale fishermen. Occup Med (Lond) 62: 148-151.

5. Lawrie T, Matheson C, Ritchie L, Murphy E, Bond C (2004) The health and lifestyle of Scottish fishermen: a need for health promotion. Health Educ Res 19: 373-379.
6. Frantzeskou E, Kastania AN, Riza E, Jensen OC, Linos A (2012) Risk factors for fishermen's health and safety in Greece. Int Marit Health 63: 155-161.
7. Novalbos J, Nogueroles P, Soriguer M, Piniella F (2008) Occupational health in the Andalusian Fisheries Sector. Occup Med (Lond) 58: 141-143.
8. Hansen HL, Hjarnoe L, Jepsen JR (2011) Obesity continues to be a major health risk for Danish seafarers and fishermen. Int Marit Health 62: 98-103.
9. World Health Organization
10. (2000) Obesity: preventing and managing the global epidemic. Report of a WHO consultation. World Health Organ Tech Rep Ser 894: i-xii, 1-253.
11. Allen P, Wellens B, Smith A (2010) Fatigue in British fishermen. Int Marit Health 62: 154-158.
12. Shetty P (2005) Energy requirements of adults. Public Health Nutr 8: 994-1009.
13. Matheson C, Morrison S, Murphy E, Lawrie T, Ritchie L, et al. (2001) The health of fishermen in the catching sector of the fishing industry: a gap analysis. Occup Med (Lond) 51: 305-311.
14. Yamamichi N, Mochizuki S, Asada-Hirayama I, Mikami-Matsuda R, Shimamoto T, et al. (2012) Lifestyle factors affecting gastroesophageal reflux disease symptoms: a cross-sectional study of healthy 19864 adults using FSSG scores. BMC Med 10: 45.
15. Sørensen TI (1995) Socio-economic aspects of obesity: causes or effects? Int J Obes Relat Metab Disord 19 Suppl 6: S6-8.